CLAIMS

1. An ozone water comprising an aqueous solution containing ozone nano-bubbles which hold ozone therein, the bubbles having diameters of 200 nm or less.

2. The ozone water as claimed in Claim 1, wherein a concentration of ozone in the aqueous solution is 0.1 mg/L or more.

3. A method for producing an ozone water, comprising the step of instantaneously shrinking bubble diameters of ozone-containing microbubbles in an aqueous solution to generate ozone nano-bubbles by the application of a physical irritation to the ozone-containing microbubbles in the aqueous solution.

4. The method as claimed in Claim 3, wherein the microbubbles are stopped from shrinking in such a manner that a charge density on the surface of each of the microbubbles is increased to evolve electrostatic repulsive forces when the bubble diameter is decreased to 200 nm or less in the step of instantaneously shrinking the microbubbles.

5. The method as claimed in Claim 3, wherein the generated ozone nano-bubbles are stabilized in such a manner that in the step of instantaneously shrinking the microbubbles, negatively and

positively charged ions are electrostatically attracted to ions adsorbed by a gas-liquid interface and drawn to a part adjacent to the gas-liquid interface in the aqueous solution, and accumulated in high concentrations within a minute volume, to form a shell surrounding each of the microbubbles so that the ozone in the microbubbles is inhibited from diffusing through the aqueous solution.

6. The method as claimed in Claim 3, wherein the generated ozone nano-bubbles are stabilized in such a manner that in the step of instantaneously shrinking the microbubbles, negatively and positively charged ions are electrostatically attracted to ions adsorbed by a gas-liquid interface and drawn to a part adjacent to the gas-liquid interface in the aqueous solution, and accumulated in high concentrations within a minute volume, to form a shell surrounding each of the microbubbles so that the ozone in the microbubbles is inhibited from diffusing through the aqueous solution.

7. The method as claimed in Claim 3, wherein the generated ozone nano-bubbles are stabilized in such a manner that the ions adsorbed by the gas-liquid interface include hydrogen ion and hydroxide ion, and electrolytic ions in the aqueous solution are used as the ions to be drawn to the part adjacent to the gas-liquid interface.

8. The method as claimed in Claim 3, wherein the generated ozone nano-bubbles are stabilized in such a manner that adiabatic compression occurring in the step of instantaneously shrinking the microbubbles abruptly increases a temperature within each of the microbubbles to cause a physicochemical change involving an extremely high temperature around each of the microbubbles.

9. The method as claimed in Claim 3, wherein the physical irritation is caused by electrically discharging the microbubbles using a discharger.

10. The method as claimed in Claim 3, wherein the physical irritation is caused by irradiating the microbubbles with ultrasonic waves using an ultrasonic generator.

11. The method as claimed in Claim 3, wherein the physical irritation is caused by compression, expansion and vortexes which occur when a flow is created in the aqueous solution by actuating a rotor set in a vessel holding the aqueous solution therein.

12. The method as claimed in Claim 3, wherein the physical irritation is caused by compression, expansion and vortexes, in the case where a circulating circuit is provided in a vessel, in such a manner that the aqueous solution containing the microbubbles is introduced into the circulating circuit and

then caused to pass through an orifice having a single opening or a plurality of openings or a porous plate which is provided in the circulating circuit.